

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-004758**Date Inspected:** 10-Nov-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2300**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai China**CWI Name:** Zhu Zhong Hai**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower**Summary of Items Observed:**

89M mock up

Caltrans QA Inspector observed that ZPMC was performing the welding of fit-lug to diaphragm plate on 2 welds; these welds were identified as MUB-MA21-G/J-31 and MUB-MA21-A/J-65. Upon the arrival of this QA inspector it was observed that ZPMC had used the Shielded Metal Arc welding (SMAW) process under 2 welding procedures identified as WPS-B-T-4113-2 and WPS-B-P-2113. The welding electrode used for these locations was the high nickel rod identified under ABF's new weld trial procedure ABF-WPS-D15-F1202A as E7018 C3L H4R, 3.2mm electrode in the vertical up progression. The weld joints were MUB-MA21-G/J-31 and 65 performed by two (2) ZPMC welders identified as #053753 and #048617 the position they had welded in was vertical up progression. These weld joints were for the diaphragm to fit-lug fillet welds. The welding parameters for MUB-MA21-G/J-31 appeared to be; pre-heat of 188°C, 116 amps, 24.6 volts and a travels speed of 104mm/min. The welding parameters for MUB-MA21-G/J-65 appeared to be; pre-heat of 193°C, 115 amps, 24.2 volts and a travels speed of 105mm/min. ZPMC completed the MT of the root passes with acceptable results as stated by ZPMC. ABF personnel were present for the MT and also accepted these results for the hold point as outlined within the procedure. According to the ABF letter dated October 14, 2008 the weld trials were to be done by using "the same equipment, equipment set up, welders and QC/QA staff" it has been observed and documented that ZPMC has not used the same welders for these trials. The starting time and temperatures for the controlled cool down started at 2000 hrs with a starting temperature of 198°C the ambient temperature was approximately 19°C. Below are the details of the controlled cool down.

2000 hrs – 198°C (Start of cool down)

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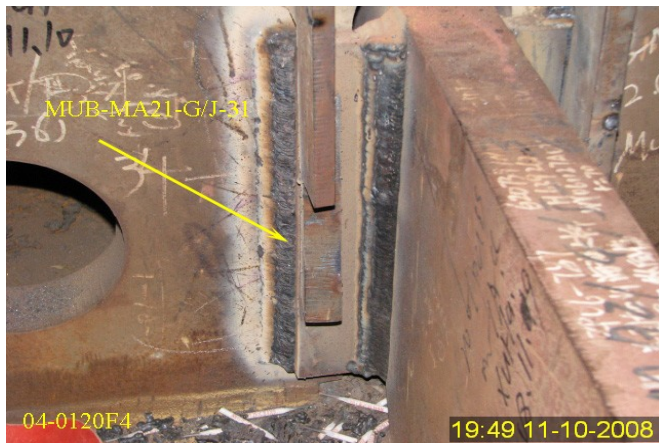
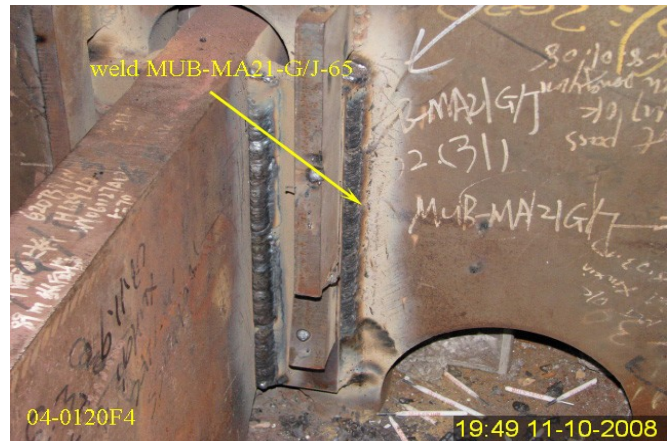
# WELDING INSPECTION REPORT

( Continued Page 2 of 2 )

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2030 hrs – 182°C

The controlled cool down was still in process by the end of this QA inspectors scheduled shift.



## Summary of Conversations:

As noted above.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Josh Ishibashi, 1-376-471-0411, who represents the Office of Structural Materials for your project.

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**Inspected By:** Riley, Ken

Quality Assurance Inspector

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**Reviewed By:** Carreon, Albert

QA Reviewer